Public Safety Broadband For Events

Delivering Secure, Reliable Data For Planned Events and Emergency Incidents

Public Safety Broadband for Events

Options for different media

- Ethernet
- Private Wi-Fi
- Cellular Data
- Satellite Data
- Radio Systems
- Hybrid Systems

Security Concerns

Practical Application at Luke Bryan Concert

Disclaimers

1. The companies and products mentioned in this presentation have not been evaluated for your specific use and their mention does not indicate endorsement.
2. The security details of any implementation are beyond the scope of this presentation
3. There is no substitute for repeated practice and reviews

Data Options

Each communications medium has its own advantages and disadvantages for speed, range, reliability, and security.

No one medium will cover all use cases

Your backhaul is essential

Layer your coverage for flexibility and redundancy

Ethernet / Fiber

Advantages

- High bandwidth
- Highly weather resistant
- Less interference
- May be more secure from point to point*
- **Heavy duty outdoor versions available**

Disadvantages

- Fixed locations
- Subject to physical damage
- Distance limitations
- Outdoor grounding for weather

Private Wi-Fi

Advantages

- Potential for high bandwidth
- Semi weather resistant medium*
- Local control
- Good for area coverage (mobile) or long range (point to point)

Disadvantages

- Security is critical
- Radio interference
- Higher bands have LoS limitations
- Preplanning & config essential
- Range limitations unless fixed point to point
- Authentication & provisioning can get complex

Cellular

Advantages

- Deploy anywhere
- Easy deployment
- 3rd party infrastructure
- Prioritization available*

Disadvantages

- Band 14 not ubiquitous
- Subject to interference
- Bandwidth limitations
- Reliance on 3rd party infrastructure
- Mobile VPN and/or Private APN highly recommended

Satellite

Advantages

- Independent of local infrastructure
- Less susceptible to interference or local attacks

Disadvantages

- Weather dependent
- Traditionally high expense
- LoS dependent

AUXCOMM / Amateur Radio

Advantages

- Less reliance on infrastructure
- Typically less interference
- Long range
- Enthusiasm

Disadvantages

- Licensing and training required
- Low bandwidth

Hybrid Options

Digital Highway Portable Data Network (PDN)

4K Solutions Mobile Broadband Kit (MBK)

Starlink Satellite Receiver

Purpose

Open network? *(NOT RECOMMENDED)*

Multi-Agency?

Single Agency?

Intel / Social Media / Google Traffic feeds?

Video Feeds?

Security concerns

- Keep networks separate
- Who HAS to have access?
- Mobile VPN software invaluable
- Physical security paramount
- Update all device firmware, apps, and OSs

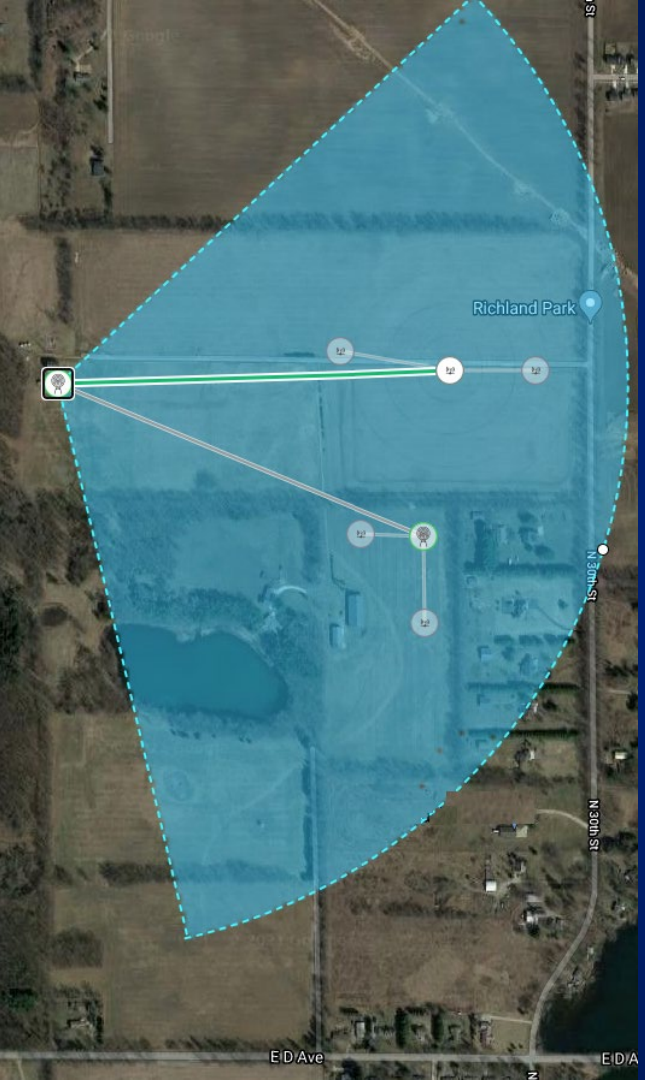
Security concerns

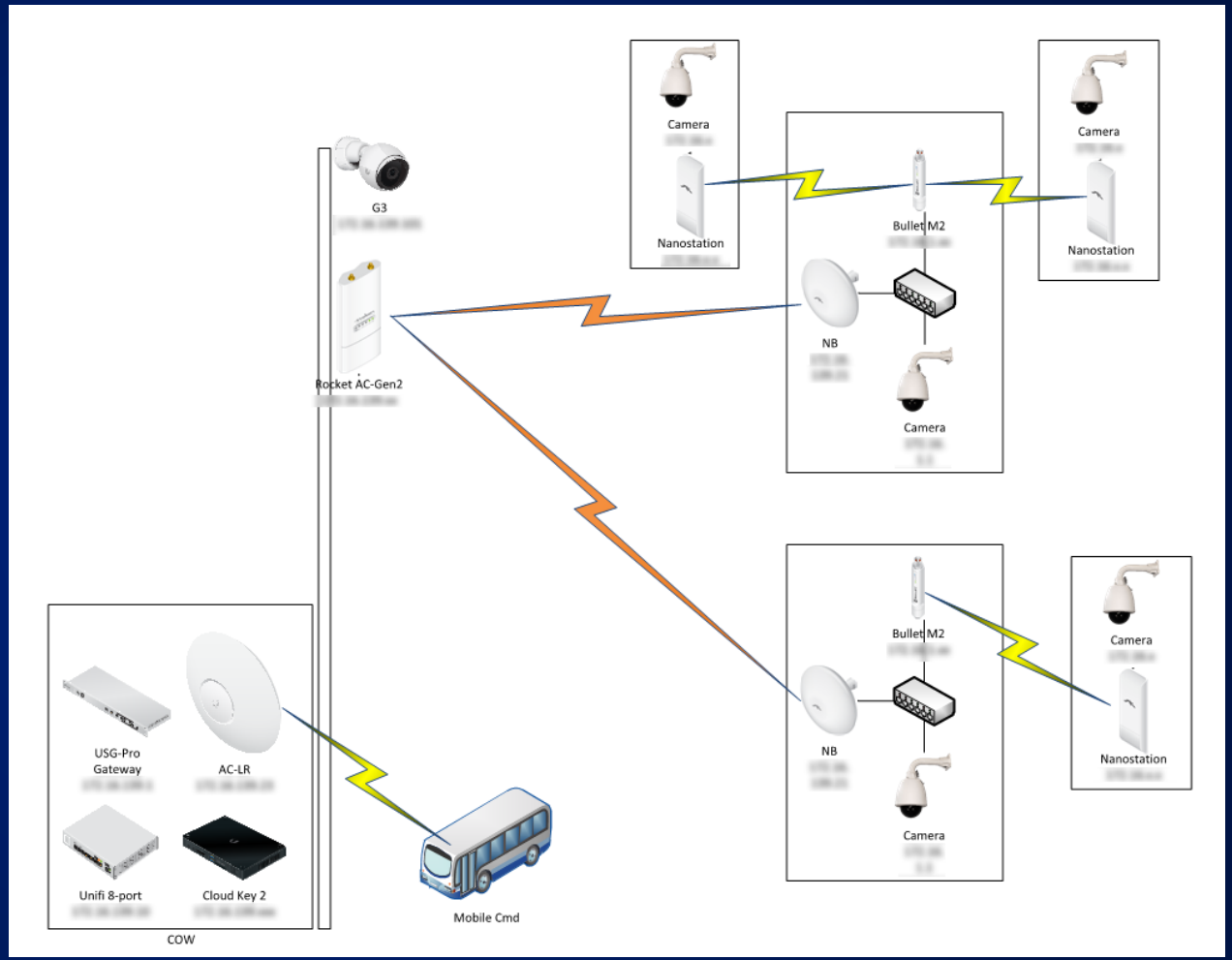
- Assume someone present and someone remote will be trying to get into your network
- Involve your local IT professionals from the very beginning
- How will you monitor for intrusions / attacks?
- What are the consequences of hostile access?

Luke Bryan Concert 2019

- Country music concert
- 20,000 tickets sold
- Tailgating starts 1400hrs, and concert doors open 1700hrs
- Did we mention it’s in a farm field?
  - No power
  - No existing lighting
  - No telecom lines
  - Limited cell phone capacity
  - Grass/mud surface

Deployables - check


Richland Park
N 30th St
E D Ave


G3
Rocket AC-Gen2
Camera
Nanostation
Bullet M2
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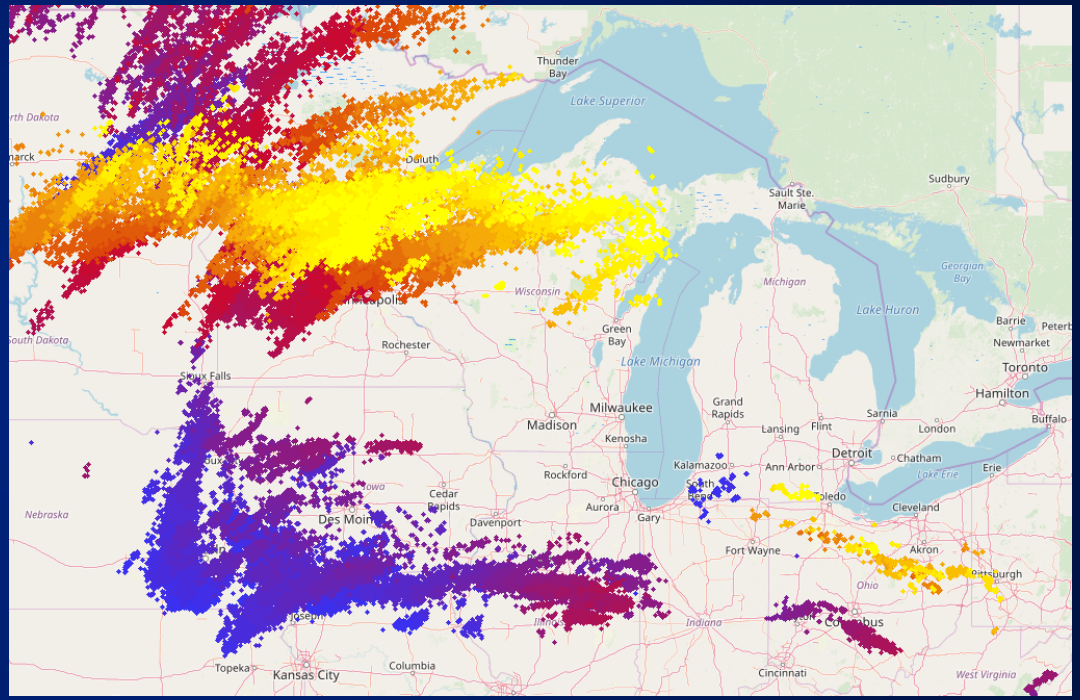
Nanostation
USG-Pro Gateway
AC-LR
Unifi 8-port
Cloud Key 2
COW
Mobile Cmd


DuraComm
TRIPP LITE



Source: http://www.lightningmaps.org

Luke Bryan Concert 2019 Version 2.0

1. Added COML/COMT Daryl Dunham from MPSCS and a MPSCS COLT
2. Engineer John McDonough from MSP's Emergency Operations Center w/ deployable camera system
3. 4-5 AUXCOMM team members
4. Additional practice sessions on equipment
5. Dual carrier modems in Mobile Command
6. Hard line from COW to Mobile Command
7. Fully deployed and tested remote video system


EMERGENCY MANAGEMENT
JLG LIFT
verizon
response


Fort Custer Recreation
Map and Guide
Exit 49
M-89
Plainwell
Exit 44
D Ave.
Cooper Twp
Exit 41
BL-94

Lessons Learned

1. Mother nature trumps all
2. Events or disasters will overwhelm existing cellular infrastructure
3. Satellite deployables work great, but have weather limitations
4. Use hard lines wherever possible
5. Private Wi-Fi can help with video and IoT deployments
6. Large crowds will have hundreds of Wi-Fi hotspots
7. CCTV is a huge force multiplier
8. Enlist additional techs – systems fail, need physical access, etc
9. Cybersecurity planning is crucial
10. Practice, practice, practice

The Next Generation

Mast with fixed cameras
Wireless backhaul with theoretical 450+ Mbps link
Optional mesh wireless access point
Pelican case with 24hr battery, charger
Setup time < 10 minutes

One mast per Region 5 mesh camera participant, with seamless integration for borrowing for events

Questions?